

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An electrolyte membrane comprising a porous substrate, wherein pores of the porous substrate are filled with a first polymer having proton conductivity, thereby to impart proton conductivity to said electrolyte membrane, and the porous substrate is comprised of i) a second polymer which is at least one selected from the group of polyolefins, and ii) a third polymer having a carbon-carbon double bond in the molecule of the third polymer, and the porous substrate comprises a crosslinked second polymer wherein the second polymers are crosslinked with one another, and wherein the electrolyte membrane has a proton conductivity of 0.05 S/cm or more and a membrane area change ratio of 20% or less.

2. (Original) The electrolyte membrane according to claim 1, wherein said third polymer is at least one of polymers having an alicyclic skeleton structure and polybutadiene.

3. (Previously presented) The electrolyte membrane according to claim 1, wherein said third polymer is polynorbornene.

4. (Previously presented) The electrolyte membrane according to claim 1, wherein said second polymer comprises polyethylene.

5. (Previously presented) The electrolyte membrane according to claim 1, wherein said second polymer is polyethylene and said third polymer is polynorbornene.

6. (Previously presented) The electrolyte membrane according to claim 1, wherein one end of said first polymer is bound to surface of pores of said porous substrate.

7. (Previously presented) The electrolyte membrane according to claim 1, wherein pores of the porous substrate are further filled with forth polymer having proton conductivity.

8. (Previously presented) A fuel cell comprising said electrolyte membrane according to claim 1.

9. (Previously presented) A solid polymer fuel cell comprising said electrolyte membrane according to claim 1.

10. (Previously presented) A direct methanol solid polymer fuel cell comprising said electrolyte membrane according to claim 1.

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